

REMARKS

SUMMARY:

The September 14, 2005 Office Action set forth several objections to the specification and rejections of original claims 6-13, as follows. The Examiner has helpfully suggested a different title of the invention. The Abstract is objected to for not having a word limit within a range of 50 to 150 words. Original claims 6-7 and 9-13 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,215,372 (Novak). Original claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Novak.

Responses to the characterizations summarized above (including traversal of the prior art rejections) are hereafter presented with respect to each individual aspect presented by the Examiner.

OBJECTIONS TO THE SPECIFICATION:

On numbered page 2 of the September 14, 2005 Office Action, the Examiner suggested a new Title of the Invention. The suggested Title is apparently one that the Examiner believes would be more appropriately descriptive of the claimed subject matter. In response, a replacement Title of the Invention is submitted in the present amendments, without entry of any new matter, to more particularly refer to the claimed technology of the subject application as a "method for adjusting performance characteristics of a multilayer component". Entry and approval of such amendment to the Title of the Invention is respectfully requested.

Numbered page 2 of the September 14, 2005 Office Action further recommends that the Abstract be revised. In response, Applicants submit a replacement Abstract section in the presently submitted amendments that is intended to describe the methodology set forth in the present claims, and also that is within the target range of 50-150 words. Such amendments do not add any new matter to the subject application, and otherwise place the Abstract in full compliance with 37 C.F.R. §1.72(b). A clean

copy of the subject replacement Abstract is included on a separate sheet and provided as Appendix A of this paper.

BACKGROUND CASE LAW RE 35 U.S.C. §102 & §103:

Before setting forth a discussion of the prior art patents applied in the most recent non-Final Office Action, it is respectfully submitted that controlling case law has frequently addressed rejections under Sections 102 and Section 103.

"For a prior art reference to anticipate in terms of 35 U.S.C Section 102, every element of the claimed invention must be identically shown in a single reference." Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 677, 7 U.S.P.Q.2d 1315, 1317 (Fed Cir, 1988; emphasis added). The disclosed elements must be arranged as in the claim under review. See Lindemann Machinefabrik v. American Hoist & Derrick Co., 730 F.2d 1452, 1458, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). If any claim, element, or step is absent from the reference that is being relied upon, there is no anticipation. Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565, 230 U.S.P.Q. 81 (Fed. Cir. 1986). Anticipation under 35 U.S.C. Section 102 requires that there be an identity of invention. See Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 225 U.S.P.Q. 635, 637 (Fed. Cir. 1985). In PTO proceedings, claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. In re Sneed, 710 F.2d 1544, 1548, 218 U.S.P.Q. 385, 388 (Fed. Cir. 1983).

In addition to the well-known required multi-step analysis of Graham v. John Deere Co., 381 U.S. 1, 148 U.S.P.Q. 459 (S. Ct. 1966), and its progeny, the Court of Appeals for the Federal Circuit has on numerous occasions offered its guidance concerning the propriety of Section 103 rejections.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. (emphasis original)

ACS Hospital Systems, Inc. v. Montefiore Hospital, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

The task of the Patent Office is essentially a burden of proof not just to show prior patents with selected elements similar to respective parts of a claimed combination, but to show teachings to support obviously combining the elements in the manner claimed.

Virtually all inventions are necessarily combinations of old elements. The notion, therefore, that combination claims can be declared invalid merely upon finding similar elements in separate prior patents would necessarily destroy virtually all patents and cannot be the law under the statute, ' 103. (footnotes omitted)

Panduit Corp. v. Dennison Manufacturing Co., 1 U.S.P.Q. 2d 1593, 1603 (Fed. Cir. 1987).

In In re Deminski, 230 U.S.P.Q. 313 (Fed. Cir. 1986), the court reversed a Patent Office Board of Appeals decision rejecting claims for obviousness, saying: "There [was] nothing in the prior art references, singly or in combination, 'to suggest the desirability, and thus the obviousness' of the [claimed subject matter]." Id. at 315; emphasis original. The court noted that the relied-on reference did not address the technical problem addressed by the claimed invention (and in fact taught away from the Applicant's invention), and stated the well-established principle that "[h]indsight analysis is clearly improper. . . ." Id. at 316.

In Bausch & Lomb v. Barnes-Hind/Hydrocurve, 230 U.S.P.Q. 416 (Fed. Cir. 1986), the court vacated a district court holding of invalidity for obviousness. In doing so, the district court was criticized for viewing teachings from the prior art in isolation, instead of considering the prior art references in their entirety; for entering the tempting but forbidden zone of hindsight analysis; for failing to view the claimed invention as a whole; and for disregarding express claim limitations. Id. at 419, 420.

It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art. (citations omitted)

Bausch & Lomb v. Barnes-Hind/Hydrocurve, 230 U.S.P.Q. 416, 419 (Fed. Cir. 1986).
(emphasis added)

The Supreme Court in Graham and Adams . . . foreclosed the use of substitutes for facts in determining obviousness under section 103. The legal conclusion of obviousness must be supported by facts. [footnote omitted] Where the legal conclusion is not supported by facts, it cannot stand. . . .

A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art. . . . It [the Patent Office] may not, because it may doubt that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis. . . .

[W]e may not resolve doubts in favor of the Patent Office determination when there are deficiencies in the record as to the necessary factual bases supporting its legal conclusion of obviousness. (emphasis original)

In re Warner, 379 F.2d 1011, ___, 154 U.S.P.Q. 173, 177, 178 (C.C.P.A. 1967).

Finally, the PTO Board of Appeals noted the following in Ex parte Clapp:

"[S]implicity and hindsight are not proper criteria for resolving the issue of obviousness.

" Ex parte Clapp, 227 U.S.P.Q. 972, 973 (PTO Bd. App. 1985).

REJECTION OF ORIGINAL CLAIMS 6-7 AND 9-13 (35 U.S.C. §102(b)):

Original claims 6-7 and 9-13 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,215,372 (Novak). Based on the present subject matter of such claims, and the following remarks, Applicants respectfully traverse such alleged anticipation and respectfully request withdrawal of such rejections.

Original claims 6-12 are directed to a method for adjusting the equivalent series resistance (ESR) of a multi-layer component. The method includes providing various layers in a multi-layer component, including a resistive layer, and then adjusting properties of the resistive layer to vary the ESR of the component.

The original specification, including in lines 15-25 of page 19 thereof, sets forth one example that discusses more particular aspects of a technique as set forth in claims 6-12. With reference to Fig. 1B of the subject application, an insulating (dielectric) layer 22 and resistive barrier layer 34 are provided between a bottom electrode 20 and a top electrode 24 (which are respective conductive layers). Respective arrays of circular openings are provided in the top electrode layer 24 and in the resistive layer 34. By forming the circular openings in electrode layer 24 larger than the respective openings in resistive layer 34, additional portions of resistive layer 34 are exposed. More exposure of the resistive layer 34 increases the ESR of the multilayer component. Selection of this exposure area can serve to “tune” the ESR of the multilayer component, making it possible to design and provide a component that reduces potential ringing in a resultant circuit application.

Numbered page 3 of the September 14, 2005 Office Action asserts that Novak discloses all elements of claim 6, including providing various electrically conductive layers, insulating layers and a resistive layer as well as adjusting ESR of the component. Such overall position of the USPTO is respectfully traversed, inasmuch as there are several differences between the subject matter disclosed in Novak and the methods respectively set forth in claims 6-13. These differences will now be discussed.

A general difference between the disclosure of Novak and the methods set forth in claims 6-13 is that Novak concerns a multilayer substrate or circuit board, which is an element on which integrated circuits are often built. This is a generally different technology from multilayer capacitors (one type of components), which is one particular exemplary focus of the subject matter of the present application. The importance of such basic distinction between circuit substrates and multi-layer components should be better appreciated from the following additional discussion of the Novak reference and the present claims.

Original claim 6 sets forth the steps of producing a multilayer component including at least first and second electrically conductive layers separated by an insulating layer, and providing a resistive layer layered with the insulating layer and the first and second electrically conductive layers. Numbered page 3 of the September 14,

2005 Office Action equates planar conductors 602, 604, 606 or 608 of Novak with the electrically conductive layers of claim 6, and dielectric layers 610, 612 or 614 with the insulating layer of claim 6. The Office Action further equates capacitive islands 650 and 652 of Novak with the resistive layer set forth in claim 6.

It is respectfully **not accurate** to characterize capacitive islands 650 or 652 as a “resistive layer”. If the circuit substrate embodiments disclosed in Novak are viewed as layered structures, then capacitive islands 650 and 652 combine with a core laminate to form a single insulating layer 412/612. As described in col. 6, lines 46-54 of Novak, multiple islands of high dielectric constant material are dispersed within a core laminate of a low-dielectric constant material to form an integrated and continuous insulating layer. A layer, as defined in Webster’s New Collegiate Dictionary, Ninth Edition, is “one thickness, course, or fold laid or lying over or under another.” This definition is representative of the ordinary meaning of the term layer. As layers are generally understood and as also described in both the subject application and in the Novak patent, capacitive islands 650 and 652 are not separate layers, but an integral portion of insulating layer 412/612.

Based on the above distinctions, Applicants respectfully submit that the capacitive islands in Novak do not correspond to a “resistive layer” separate from electrically conductive layers and an insulating layer. Therefore, as a matter of law, Novak can not anticipate the pertinent claimed subject matter.

Claim 6 also sets forth the step of adjusting the ESR of a component by varying the effective resistance of the resistive layer. Numbered page 3 of the September 14, 2005 Office Action asserts that such step is disclosed in Novak in col. 8, lines 59-61, and col. 9, lines 5-20. **However**, col. 9, lines 5-20 of Novak respectfully refer to an additional resistor 906, **not** the capacitive islands previously equated with the resistive layer of claim 6.

In further contrast, col. 8, lines 59-61 of Novak do refer to the capacitive islands, but describe selecting/varying a value of the capacitance C of the high dielectric islands, not the ESR of the islands. Although the capacitive island will have an ESR associated with it, such parameter is **not** one that is intentionally adjusted or varied by Novak in

accordance with a desire to tune circuit resonancy. Novak discloses the selection of varied capacitance values in order to effect certain circuit performance characteristics, which is a different parameter than resistance.

Again, as a matter of law, Novak can not be relied on for the anticipation alleged in the subject Office Action.

Even if ESR were to vary in minor amounts due to different possible choices for the capacitance C of the high dielectric islands in Novak, Novak appears to indicate a preference to have some predictable and fixed associated ESR value. In simulations performed for exemplary embodiments of the Novak technology (see col. 7, lines 1-10 of Novak), capacitance values are varied (stepped through the values of 1500 pF, 500 pF, 15 nF, 150 nF and 500 nF) while ESR and ESL values remain constant.

The foregoing established stabilization of ESR further exemplifies that Novak is concerned with adjusting capacitance, and not resistance of the circuit substrates therein.

Based on the above distinctions, Applicants respectfully submit that Novak fails to disclose all elements of independent claim 6, especially the provision of a distinct resistive layer among the first and second electrically conductive layers and insulating layer, as well as the step of adjusting the ESR of the component by varying the effective resistance of the resistive layer. As such, Novak as a matter of law can no anticipate present claim 6, and such present claim 6 should be found as patentable over the Novak reference.

Since claims 7-12 further depend from claim 6, which should otherwise be allowable per the foregoing, and further limit same, claims 7-12 should also be allowable over Novak, and Applicants respectfully request acknowledgement of same.

Concerning dependent claim 7, Applicants note that the capacitive islands 650, 652 of Novak (which are equated per the Office Action with a resistive layer) are not provided "between the insulating layer and one of the first or second electrically conductive layers", as set forth in such claim 7. The Novak capacitive islands 650, 652, which are an integrated part of insulating layer 612, are provided between conductive layers 604 and 606, not in between an insulating layer and a conductive layer.

Dependent claims 9 and 11 are directed to adjusting the thickness of the resistive layer in a multilayer component. Numbered page 4 of the September 14, 2005 Office Action states that value h in Fig. 1 of Novak is the thickness of the resistive layer, and that such value can be varied. **However**, Col. 10, line 50 of Novak describes h as the thickness of the **insulating** layer. Such fact further demonstrates that the capacitive islands 650, 652 of Novak must be part of the insulating layer.

The above-described insulating layer and resistive layers in present claims 9 and 11 are respectively different features of such claims. Therefore, the indicated description in Novak cannot anticipate present claims 9 and 11.

With regard to dependent claim 13, several aspects of such claim are also not disclosed in Novak. Presently amended claim 13 sets forth a step of varying the thickness of selected of the separate insulating layers in a multi-layer component. The varied thickness arrangement is such that there are insulating layers of at least two different thicknesses. Various examples of such feature set are illustrated in Figs. 6A-6E of the subject application, and include such configurations as those referred to as continuous thickness variation, patterned thickness variation, and matched variable thickness variation.

Although the thickness of the collective insulating layers in Novak may be a selectable parameter, Novak **does not appear to discuss the provision of insulating layers with different thicknesses** as set forth in present claim 13. As such, claim 13 as a matter of law can not be anticipated by Novak but should instead be patentable over such reference, and Applicants respectfully request acknowledgement of the same.

REJECTION OF ORIGINAL CLAIM 8 (35 U.S.C. §103(a)):

Original claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Novak. Numbered pages 5 and 6 of the September 14, 2005 Office Action state that “[i]t would be obvious to one of ordinary skill in the art at the time the invention was made to consider these selected areas or distances as varying and spacing diameters

of through-holes, which can vary and match the impedance of the multilayer circuit in order to reduce noise and any ground bounce signal.”

As previously described, the subject application discusses forming circular openings in one of the electrically conductive layers larger than the respective openings in an adjacent resistive layer, thereby exposing additional portions of the resistive layer and increasing the ESR of the multi-layer component. Such unique selection of the amount of coverage of the perforated conductive layer relative to the adjacent resistive layer is what enables the “tuning” or selection of a desired ESR value.

The Examiner admits that the above features are not disclosed in Novak. Further, it is respectfully submitted they are not simply “obvious” features, as the Examiner alleges. Per pertinent case law, every element of the claims must be disclosed in a reference or combination of references.

Every element of claim 8, especially the step of adjusting the diameter of through-holes of an electrically conductive layer relative to a resistive layer, is not disclosed in Novak. The Office Action does not point to any place in Novak or another reference that discusses this feature. The Office Action also fails to point to a specific disclosure in Novak that purportedly provides any suggestion or motivation for “obviously” modifying the technology of Novak in a way as set forth in original claim 8.

In view of the foregoing, the 35 U.S.C. §103(a) rejection of original claim 8 is inappropriate, and withdrawal of such rejection is respectfully requested.

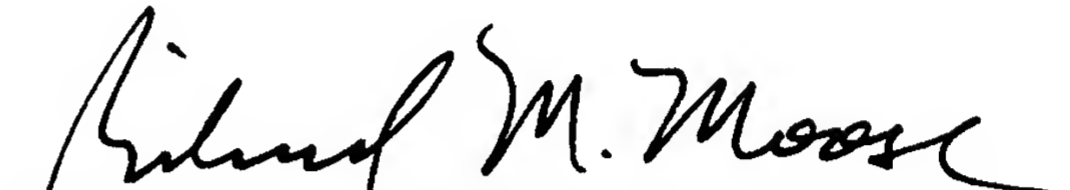
CONCLUSION:

Inasmuch as all outstanding issues have been addressed, it is respectfully submitted that the present application, including active claims 6-13, is in complete condition for issuance of a formal Notice of Allowance, and action to such effect is earnestly solicited. The Examiner is invited to telephone the undersigned at his convenience should only minor issues remain after consideration of this response in order to permit early resolution of the same or if he has any questions regarding this matter.

Respectfully submitted,

DORITY & MANNING,
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